



United Nations Development Programme

Project Document Format for non-CPAP Countries or Projects outside a CPAP

Country: occupied Palestinian territory – Gaza Strip

Re-activation and Upgrading of the Deir Al Balah Sea Water Desalination Plant

Project Document  
15 April 2010

**Expected CP Outcome:**

Essential Infrastructure for Economic and Social Development Improved by developing a new water source through the reactivation and upgrading of the Deir Al Balah Sea Water Desalination Plant; thus providing access to potable Water and preserving the Aquifer in the Gaza Strip.

**Expected Output(s):**

- Deir Al Balah Sea Water Desalination Plant re-activated and upgraded for more effectiveness and sustainability.
- Sustainable access to safe and potable water provided in the Middle Governorate of the Gaza Strip, and in Al Zawaida area in particular..
- Increased awareness of the beneficiaries regarding the efficient use of water, water quality and water resources management.

**Executing Agency:**

UNDP/PAPP

**Implementing Agencies:**

GVC

**Brief Description**

The Gaza Strip has been going through tangled political and socio-economical conditions, terminated by rapid erosion of livelihoods and serious depletion of limited natural resources. The ground water aquifer is mainly the unique water source for domestic use, which has been over drafted beyond any sustainable yield as well as being chemically polluted; placing the water situation in the Gaza Strip in dire conditions.

The project aims at developing a new water source through re-activating and upgrading the Deir Al Balah Sea Water Desalination Plant for providing sustainable access to safe potable water to 17,786 residents living in Al-Zawaida area, located in the Middle Governorate of the Gaza Strip. The project will also contribute to preserving the local ground water aquifer.

The pumping systems of two sea-shore water wells will be rehabilitated and the existing high pressure energy saving system will be upgraded for energy cost effectiveness.

By providing additional water source, the project will strengthen the managerial capacity of the service provider in achieving efficient and an equitable scheme for distributing potable water in the marginalized areas.

A public awareness campaign will be conducted targeting residents, municipal staff and the service provider(s) to address water quality-related issues, the efficient use of water and to enhance water resource management to enable achieving effective cost recovery and project's sustainability.

Programme Period: April 2010 – April 2011

Country Programme Component: Access to effective social, economic, public services and public utilities enhanced.

Environment

Project Title: Re-activation and Upgrading of Deir Al Balah Sea Water Desalination Plant

Atlas Award ID: 000-59090

Start date: April 2010

End Date: April 2011

Total resources required: **Euro 270,710**


Total allocated resources: **Euro 270,710**

- Regular
- Other:
  - Donor: Government of Italy
  - Donor
  - Donor
  - Government

Unfunded budget: \_\_\_\_\_

In-kind Contributions \_\_\_\_\_

Agreed by / Date: 15 April 2010

  
Jens A. Toyberg-Frandzen  
Special Representative of the Administrator, UNDP/PAPP

---

## I. SITUATION ANALYSIS

### 1.1. Country Context

The Gaza Strip is a flat territory located at the south eastern coast of the Mediterranean Sea currently inhabited by 1.5 Million people. While overburdened with a high population density of around 4,000 persons per square kilometer, it lacks renewable natural resources.

Over the last five decades, the strip has been going through tangled political and socio-economical conditions, terminated by rapid erosion of livelihoods and environmental conditions, depletion of limited natural resources and serious deterioration of basic infrastructures; especially in the water/health related sectors.

The dramatic events of the last Israeli Cast Lead military operation in December 2008-January 2009 have exacerbated further the living standards and the socio-economic conditions of the residents of the Gaza Strip that resulted from the two years of closure and siege imposed by Israel, and which has contributed to the internal conflict among Palestinian factions.

Lack of financial resources and construction materials has deactivated the water-related Palestinian national policies. The water sector and developing additional water resources in particular has been subject to underinvestment; which lead eventually to the absence of sustainable and qualitative water resources.

The water availability and quality in the Gaza Strip is little short of catastrophic; placing the water and sanitation systems on the brink of collapse. In respect, Amnesty international reported on October 2009 that the water situation in Gaza is dire.

UNEP reported in September 2009 that the environment in the Gaza Strip, following the escalation of violence in December 2008 and January 2009, was severely degraded where a number of other parts of the water supply were affected during the hostilities. The most urgent and challenging finding is the state of the underground water supplies, where years of over-abstraction and pollution now mean that the sustainability of the Gaza Strip is in serious doubt, unless the aquifer is rested and solutions, such as improved sanitation and desalination, are introduced<sup>1</sup>.

UNDP, as the coordinator of the Early Recovery cluster, has been working with the Palestinian Authority, its sister UN agencies, and national and international partners to assess damages and needs, and to develop plans for the restoration of essential social and public services, as well as to reconstruct essential infrastructure in order to accelerate livelihood recovery.

During 2007, UNDP/PAPP suspended and later terminated its infrastructure-related construction activities in the Gaza Strip due to the unavailability of construction materials in the local market, as a result of imposed blockade on Gaza. However, UNDP is still exerting serious efforts with the Government of Israel to allow construction materials for its projects into Gaza, which, unfortunately have not been successful to this point.

The proposed project activities will contribute to improving the essential infrastructure for economic and social development through reactivating and upgrading the existing non-efficient sea water desalination plant of Deir Al Balah, and by enhancing the quality of life of marginalized areas.

The project aims to provide sustainable access to safe and qualitative potable water to 17,786 residents living in Al-Zawaida area; located in the Middle Governorate of the Gaza Strip, and to reduce public health threats associated with lack of safe potable water. It will also contribute to developing a new water source, while easing the pressure from and preserving the ground water aquifer in the Gaza Strip.

### 1.2. Problem Statement

#### 1.2.1. Situation of Water Resources

In the Gaza Strip, the groundwater aquifer is considered the main and unique water source for drinking, domestic, agricultural and industrial purposes. With normal flows, the current sustainable yield of the aquifer segment underlying Gaza is estimated at about 57 MCM, around 15% of the total yield of the shared coastal aquifer, which is estimated at 360-420 MCM. Abstractions in recent years have been running well above any estimate of

---

<sup>1</sup> UNEP, Environment Assessment of the Gaza Strip, following the escalation of hostilities in December 2008 – January 2009, September 2009.

sustainable yield, and the over abstraction is currently estimated at 100 MCM, almost 200%. As a result, there has been a continual decline in the static water level.<sup>2</sup>

The groundwater elevation map here below shows two sensitive areas for groundwater depression, where the groundwater level elevation drops 3m in the north and more than 12m in the south below mean sea level. This drop had led to the lateral invasion of seawater and the vertical invasion from deep saline water, causing rapid deterioration of the ground water aquifer and making its water very saline and brackish.

PWA and CMWU underlined that the resource is over abstracted and that sustainable levels of extraction need to be applied, as well as developing new water sources, giving priority to the sea water treatment and desalination.

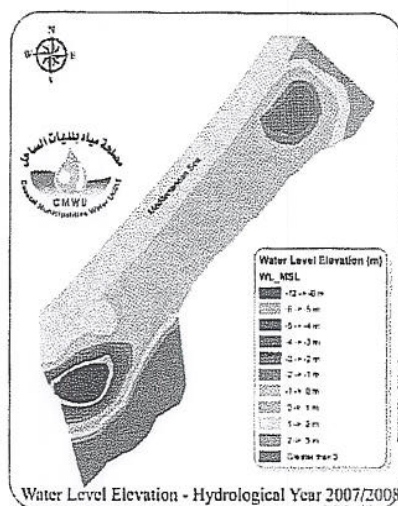


Fig 1. Water level elevation Gaza Strip (2007/2008)

### 1.2.2. Water Availability and Consumption

Almost 98% of the Gaza Strip population has access to water supply networks, where the water supply comes mainly from Palestinian-controlled sources, with dependency on Mekorot for just 4%.<sup>3</sup> Although the World Health Organization (WHO) calls for minimal water consumption of 100 -150 liters per capita per day (l/c/d) for a quality level of health; the Palestinian Water Authority shared that the Palestinians average consumption is 50 -70 l/c/d.

Low efficiency of the water distribution systems and inequitable distribution of water among different areas, together with the intermittency of service due to electricity disruption and fuel shortage in addition to the deterioration of the water quality has resulted in rapid expansion of drilling uncontrolled private wells by residents; thus placing more pressure on the ground water aquifer.

The water supplied for domestic use for the Deir Al Balah Governorate is shared by approximately 82% from groundwater wells, 15.8% from Mekorot supply and around 2% only from the existing Deir Al Balah sea water desalination plant.

The existing water system in the Middle Governorate comprises 38 groundwater wells. The total groundwater abstraction from all the wells is about 10 MCM/yr. With the network system efficiency of 64% the actual water consumption is estimated to be approximately 81 liters per capita per day.

Three municipal water wells are operating to supply Al Zawaida area with brackish water; abstracted from the local ground water aquifer. The annual water consumption in Al Zawaida area is 651,504 CM/year, and around 20% of this amount is supplied by Mekorot services blended in the water network. (Source: Geographic

<sup>2</sup> World Bank Report (2009), Assessment of Restriction on Palestinian Water Sector Development.

<sup>3</sup> Oslo designated (Art. 40) 5 MCM of potable water to be supplied by Mekorot. Following the Coastal Aquifer Management Plan (2001), it was concluded that Gaza cannot supply itself but must find new or alternative source of water, which could be derived from bulk importation, desalination, and waste water reuse.

Information Department, CMWU, 2009). Relatively, the average water consumption is estimated at 100 liters per capita per day of non potable water.

Throughout the proposed intervention, Al Zawaida residents will continue to have access to 100 liters/capita/day for domestic use. By reactivating and upgrading the Deir Al Balah Sea Water Desalination Plant and improving the zoning scheme, 15 liters/ capita/day out of the 100 liters/capita/day will be provided for the drinking and cooking purposes.

While the efficiency of the water network for unaccountable water in the middle area is 64%, the water network in the targeted area of Al Zawaida area, is classified as one of the most efficient networks in the Gaza Strip, since it was newly constructed, with an overall efficiency of 79.6%. In parallel, the Coastal Municipalities Water Utility is currently implementing different upgrading and rehabilitation projects in the Middle Area, aiming to improve the water networks' overall efficiency for effective cost recovery.

### 1.2.3. Water quality

Due to the over abstraction of the water aquifer and sea water intrusion; the water quality has been deteriorating. As a result, only 5-10% of the water supply in the Gaza Strip complies with WHO guidelines for potable water (PWA 2008).

Some areas in the strip are still lacking sewage collection systems, and almost 90% of their water wells are yielding drinking water with nitrate concentration far beyond recommended values set by WHO guidelines (50 mg/l). Maximum nitrate concentration was recorded up to more than 380 mg/ l in some municipal water wells, while the average is exceeding 225 mg/l.

As a coping strategy due to deteriorated water quality, the Gaza market has responded by increments of private uncontrolled small-scale desalination plants/units and selling water to residents for drinking purposes. According to the PWA (2009), there are at least 40 private desalination plants producing about 2,000 m<sup>3</sup> a day and selling water through water tankers, in addition to estimated more than 20,000 small home desalination units. The cost of 1 m<sup>3</sup> of tankered potable water is estimated to be around 50 NIS.

Standards and procedures for private desalination units, tankers, and distribution points are not applied in the Gaza Strip, and the distribution processes are not regulated.

*In the Middle Governorate, 70% of the pumped water meets the WHO standards in terms of nitrate concentration (50mg/l), while only 15% of the pumped water meets the WHO standards in terms of chloride concentrations (<250 mg/l), and 50% meets the PWA standards (<600mg/l).*

In Al Zawaida area, the water pumped from the three existing municipal water wells exceeds the WHO and the PWA standards in terms of chloride and nitrate concentrations. The average chloride concentration is exceeding 850 mg/l and the average nitrate concentration is around 135 mg/l.

Results of water quality monitoring campaigns conducted in the Middle Governorate in year 2009 by GVC and the Palestinian Hydrology Group (PHG) indicated that 88% of drinking water produced by private desalination units and supplied by private sector is biologically contaminated at its final destination to households and sharply de-mineralized; putting the public health under serious risks.<sup>4</sup>

### 1.2.4. Deir Al Balah Sea Water Desalination Plant

The existing Reverse Osmosis Sea Water Desalination Plant of Deir Al Balah, funded by the Austrian Development Co-operation in 2001, was designed to produce 600 m<sup>3</sup>/day of fresh water with TDS <600 mg/l.

Two sea shore wells (one operational and one on stand-by), each one producing 70 m<sup>3</sup>/h, were drilled and equipped in year 2001 as inflow source for the plant.

Both wells started to be operational in 2003 and the plant was producing 600 m<sup>3</sup> of permeate water a day, while the produced brine, dumped to the shore line directly, was about 850 m<sup>3</sup>/day. However, due to high level of TDS of the produced water in comparison to the water produced by the private sector; the desalination plant was closed in year 2004. In year 2005, the Austrian Government decided to fund a second pass reverse

---

<sup>4</sup> GVC,PHG, Water Quality Monitoring Campaigns, Middle Area of The Gaza Strip, October 2009

osmosis system to treat the permeate water produced at the first pass and to produce water with TDS level less than 200 mg/l.

However, due to the high incidence of the power costs (almost 50% of the total production cost), the production cost for 1 m<sup>3</sup> of water resulted to be too high (1.6 USD/m<sup>3</sup>).

*With the aim of lowering the production costs of the produced water from 1.6 USD/m<sup>3</sup> to 1 USD/m<sup>3</sup>, the plant management unit and the PWA drilled a new brackish water inland well (J/32) at the plant site with abstraction rate of 70 m<sup>3</sup>/h and TDS level of approximately 22,000 mg/l.*

*By feeding the plant with the brackish water of the inland well, the system produces, at the second pass, about 35 m<sup>3</sup>/h of water with a level of TDS of less than 100 mg/l (the recovery rate reaches 90%).*

Concerning the potable water distribution system, in addition to two filling stations constructed at the plant site for the private water tankers, the system was connected to the municipal network of Al Zawaida and Deir Al Balah. Moreover, a separate main line connecting the plant outlet to 13 water shops/distribution points and to about 100 household connections in Deir Al Balah was built. However, due to the illegal connections built at the main line and the inefficient cost recovery system, the management of these connections resulted to be unsustainable.

Despite of this new system, which succeeded to lower the production cost to 1 USD/m<sup>3</sup>, the low recovery rate from the costumers (including the municipality of Zawaida), the illegal connections, associated with the expansion of the private sector, and the lack of chemicals, fuel and spare parts to operate and maintain the plant, have forced the plant management unit to lower the operation hours to minimum levels.

According to the last data collected from CMWU from January to November 2009, the plant runs at 25% of its capacity using only the brackish water well (J/32) located at the plant site and the daily operational hours of the plant vary from 4 to 6, producing an average of 35 m<sup>3</sup>/h.

In addition to the unsustainable production cost, the power supply system and the data cable connecting the two sea shore wells to the plant have been damaged.

### 1.3. Project Goal

The project aims to contribute to improving the essential infrastructure for economic and social development. Throughout the project, the Deir Al Balah sea water desalination plant will be re-activated and upgraded to function efficiently and to be able to operate as per its original design scheme and capacity. The pumping systems of two sea shore water wells will be rehabilitated, and the existing high pressure energy saving system will be upgraded for energy cost effectiveness.

The existing recovery energy system (BMET) power consumption is 4.6 Kwh per cubic meter of permeate water, while the consumption rate of the new energy recovery system that will be provided is 2,8 Kwh per cubic meter of permeate water.

The project aims to improve the water quality and sustain access to safe and potable water to 17,786 residents living in Al-Zawaida area, located in the Middle Governorate of the Gaza Strip. By reactivating and upgrading the Deir Al Balah Sea Water Desalination Plant and improving the zoning scheme, Al Zawaida residents will continue to have access to 100 liters/capita/day for domestic use and out of it 15 liters/capita/day will be provided for the drinking and cooking purposes.

A public awareness campaign will be conducted targeting the service provider, municipal staff and residents to address water quality related issues, to enhance water resources management and to control water consumption to enable achieving effective cost recovery and project's sustainability.

Towards its completion, the project will enhance the quality of life, improve the wellbeing of the targeted population and safeguard the environment and the public health.

### 1.4. Targeted Community Situation

The project will directly target 17,786 residents living in Al Zawaida area, located in the Middle Governorate of the Gaza Strip. The Middle Governorate's residents will broadly benefit from the project through developing a water

distribution scheme for equitable access to potable water including the redistribution of the Mekorot water supply. Women comprise almost 49.2% of the total beneficiaries and men are 50.8%

---

## II. STRATEGY

### 2.1 National Strategy in the oPt

In light of the Palestinian Water Resources Management Strategy, the proposed project will provide additional source of water and will contribute to fulfilling the objectives the Palestinian Water Authority as the sector regulator in achieving water security and ensuring balanced management between water supply and water demand.

Furthermore, it is in line with the policy principles of the Palestinian Water Authority and the Coastal Municipalities Water Utility as it contributes to increasing the water supply and improving water quantity, control, protecting and preserving the water resources, while enhancing the institutional and managerial capacities of the water service provider.

This project contributes to the infrastructure objective of the Palestinian Development and Reform Plan (PRDP 2008) that aims to increase national prosperity and enhance quality of life through achieving efficient management and cost effective delivery of water services.

### 2.2 UNDP Strategy

The planned project outputs will contribute to the second outcome of UNDP/PAPP mid-term strategic framework 2008-2011 which aims at promoting sustainable livelihoods, economic recovery and self reliance through improving essential infrastructure for economic and social development; achieved through enhancing access to effective public service and public utilities.

The project has a multiplier effect and, towards its completion, it will contribute to, increased access to potable water by developing new water sources and enhancing the quality of life of marginalized areas, protecting and preserving the deteriorated ground water aquifer in the Gaza Strip, enhancing the managerial capacity of the service provider, and generating employment opportunities. The project will contribute to achieve target 10 of goal no.7 of the MDGs.

### 2.3 PA Early Recovery Plan

As highlighted in the PA Early Recovery Plan, the last Israeli incursion in the Gaza Strip, and the two years blockade that preceded it, have caused major damage to Gaza's public and private infrastructure of the basic services and to their delivery systems.

The proposed project is one of the important early recovery priorities, as it supports the human's basic and vital needs.

The project also aims at supporting the recovery of deteriorated infrastructure, safeguarding and protecting public health, and dignifying the living environment.

Finally, a number of employment opportunities will be produced through the project, which will enhance the livelihood recovery process.

---

## III. PROJECT DESCRIPTION

### 3.1 Project Outcome

Essential Infrastructure for Economic and Social Development Improved by developing a new water source through the reactivation and upgrading of the Deir Al Balah Sea Water Desalination Plant; thus providing access to potable water. To Al-Zawaida residents.

### 3.2 Outputs

The project expected outputs are:

- Deir Al Balah Sea Water Desalination Plant re-activated and upgraded for more effectiveness and sustainability.

- Sustainable access to safe and potable water provided in the Middle Governorate of the Gaza Strip, and in Al Zawaida area in particular.
- Increased awareness of the beneficiaries regarding the efficient use of water, water quality and water resources management.

### 3.3 Project Key Activities

The project outcome and outputs will be achieved through the following activities and will be financed under this project proposal.

These activities will be carried out and performed by GVC as the implementing agency and in close cooperation with the Palestinian Water Authority, the Coastal Municipalities Water Utilities and Al Zawaida Municipality.

The project scope will consist of 2 main components. The objective of these components is to undertake, carry out and perform electromechanical and maintenance works to re-activate and upgrade the Deir Al Balah sea water desalination plant and operating it as per its original design scheme and capacity, supplying treated safe and potable water to Al Zawaida area through the existing municipal water network and performing monitoring and public awareness campaign.

#### Component 1: Sea Water Desalination Plant re-activated and upgraded

The objective of this project component is to carry out and perform all the electromechanical and maintenance works needed to re-activate and upgrade the sea water desalination plant and operating it as per its original design capacity of 600m<sup>3</sup>/day.

##### Activity 1.1: Supply and install electrical grid and remote-control system to re-connect the two sea shore wells to the plant

Different solutions to reconnect the two sea shore wells to the sea water desalination plant were discussed among the technical teams of GVC, CMWU, PWA and UNDP, considering the availability of the materials in Gaza. The installation of the electrical grid and related equipment (transformers, etc.) was found to be the most suitable solution to re-connect the sea shore wells to the plant. An agreement was reached by the partners (GVC, CMWU and GEDCO) to share the cost of this activity and a relevant MOU was signed.

##### Activity 1.2: Rehabilitation of the two sea shore well pumping system

The activities will include restoring the original pumping system; two well pumps working in series, each one with a capacity of 70-75 m<sup>3</sup>/h. The two sea shore wells will be newly equipped with two sea water stainless steel submersible pumps (70 -75 m<sup>3</sup>/h). The required arrangements to be taken for materials entry to Gaza to avoid delay will be supported by CMWU and PWA. An agreement was reached by the partners (GVC and CMWU) to share the cost of this activity and a relevant MOU was signed.

##### Activity 1.3: Upgrading the existing high pressure pump energy saving system

In order to lower the incidence of the power costs on the final product cost, the existing high pressure pump energy saving system of 30% recovery rate will be replaced with a new complete one with 50-60% recovery rate. This system is expected to lower the water production cost by 30%, considering the sea water as intake source of the plant. The required arrangements to be taken for materials entry to Gaza to avoid delay will be supported by CMWU and PWA.

##### Activity 1. 4: Upgrading PLC, O&M of the plant and the water distribution system including provision of spare parts

On-site assistance for the installation of the energy recovery system, including PLC upgrading, will be provided. Due to the current shortage of spare parts in Gaza, a set of spare parts for the sea water pumps, including a stand by motor, as well as spare parts for the energy saving system will be provided. In addition to the cost of upgrading the PLC and the water distribution system, support to the plant operational costs (chemicals, etc.) will be also considered.



## Component 2: Improved water quality distributed through the municipal water network and community awareness campaign raised

### Activity.2.1 Study of the existing distribution system and drafting of a sustainable operational scheme

It is well known that one of the main problems affecting access to water for the population in the Gaza Strip is related to the low efficiency of the network and the poor management of the distribution system through a zoning scheme. As a fundamental activity to improve the project impact, a sustainable water distribution plan (in terms of quality and quantity) will be studied and agreed to with the CMWU, PWA and the Municipality of Zawaida.

Water quantity and quality will be monitored and water samples will be collected at different location in Zawaida area (water wells, distribution nodes, households) to be tested through specialized lab.

As part of this activity, the closure of a high salinity well in the target area, as recommended by PWA and CMWU to reduce the abstraction of water from the ground water aquifer, will be further discussed.

Specific trainings will be conducted involving the operators assigned to the management and monitoring of the distribution system at municipal level.

### Activity2.2 Establishment of Local Water Committee and public awareness campaigns

The public awareness campaign will aim at making beneficiaries aware of the improvement of the water quality distributed through the municipal network. The campaign will address local population' habits of drinking low mineralized water, sold by private vendors, and the possible health consequences related to the long-term consumption of water with low level of calcium and magnesium. Moreover, the campaign will aim at increasing the cost recovery percentage among consumers.

In order to enhance the impact of the public awareness activities, and to create a direct link between beneficiaries and the water service providers, a community-based local water committee will be established in Zawaida through coordination with the CMWU and the Municipality.

### Activity2.3 Monitoring of water quality and water supply system

As part of Activity 2.1, water samples collected at different location in Zawaida will be tested. Results of water testing will be also used as a tool to enhance community awareness and to monitor the quality of the water after the project's implementation. Correction measures shall be taken by service providers to assure supplying quantitative, qualitative and safe potable water to beneficiaries.

### 3.4 Project cost:

The project cost is estimated in the order of Euro 270,710 and is summarized as follows while detailed cost estimate is provided at Annex A.

#### Summary of Cost estimate

1.	Item1: Construction Works Including Relevant Consultancy and On-site Construction Supervision.	Euro	186,440
2.	Item 2: Construction Management & Operation Costs (GVC Management & Support Staff and logistic costs)	Euro	48,560
3.	Item 3: GVC Indirect Cost	Euro	10,000
4.	<b>Total estimated cost items 1+2+3</b>	<b>Euro</b>	<b>245,000</b>
5.	UNDP Programme operation costs and project monitoring support	Euro	8,000
6.	<b>Total Direct Costs</b>	<b>Euro</b>	<b>253,000</b>
7.	UNDP GMS 7%	Euro	17,710
8.	<b>Total Project Cost</b>	<b>Euro</b>	<b>270,710</b>

#### IV. RESULTS AND RESOURCES FRAMEWORK

Intended Outcome as stated in the Country Programme Results and Resource Framework:

Essential infrastructure for economic and social development improved

Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:

##### Outcome Indicators and targets:

- The wellbeing and health condition of 17,786 is enhanced through access to safe potable water; 100 liters/capita/day for domestic use, out of it 15 liters/capita/day for drinking and cooking purposes.
- Water supply and management system developed.
- Water quality supplied to residents improved; chloride and nitrate concentration will meet WHO guidelines.
- Deir Al Balah Sea water Desalination plant will run at its full capacity, 600 MC/day.
- Community-based local water committee established, and local community involved in the water supply management.
- 1,500 man working days for locals achieved.

##### Baselines:

- Actual water consumption in the Al Zawaida area is 100 liters/capita/day of non potable water.
- Drinkable water supplied by private sector is contaminated at its final destination.
- Deir Al Balah Sea water Desalination plant runs at 25% of its capacity.
- Participation of local communities in water management issues is low.
- 44% unemployment rate in the Gaza Strip.

##### Applicable MYFF Service Line:

Partnership Strategy: The project will be executed by UNDP and implemented by GVC

Project title and ID (ATLAS Award ID): Re-activation and Upgrading of Deir Al Balah Sea Water Desalination Plant. Proposal ID: Award Number 59090 – Project Number: 73815

INTENDED OUTPUTS	OUTPUT TARGETS FOR (YEARS)	INDICATIVE ACTIVITIES	RESPONSIBLE PARTIES	INPUTS
Output 1 Deir Al Balah Sea Water Desalination Plant re-activated and upgraded for more effectiveness and sustainability.	Targets year: 2010-2011	<ul style="list-style-type: none"> <li>▪ GVC Team Mobilization.</li> <li>▪ Prepare MOU between GVC, CMWU and GEDCO.</li> <li>▪ Prepare, review and finalize project's detailed design and R.O.O.s.</li> <li>▪ Prepare Project's tender documents.</li> <li>▪ Carry out tendering and bidding processes.</li> <li>▪ Review, evaluate bids and award contract/s.</li> <li>▪ Start and run construction works.</li> </ul>	GVC, CMWU, GEDCO, PWA, LINDP	GVC team, MOUs, PWA, CMWU, GEDCO team involved, Project Manager and

<p><b>Baselines:</b> The sea water desalination plant runs at 25% of its capacity. The existing two sea shore wells are currently out of service. The sea water desalination plant is treating brackish water pumped from ground water well producing 70m<sup>3</sup>/hr. Existing energy saving system running at 30% recovery rate. Treated water production cost is 1.6US\$/M3. <b>Indicators and targets:</b> The sea water desalination plant will run at original full design capacity, 600 m<sup>3</sup>/day. Two sea shore water wells will be in full operation each of 70m<sup>3</sup>/hr. Brackish water abstracted from ground water aquifer at the plant site stopped. New energy saving system running at 50% recovery rate installed. Treated water production cost reduced by 30%.</p>		<ul style="list-style-type: none"> <li>▪ Monitor construction works and approve payments to contractors against work accomplished.</li> <li>▪ Finalize construction work and hand over to the service provider.</li> </ul>	<p>supervision team, Contracts, Contractors, Materials, Equipments, Vehicles, Euro 183,585 through Italian Cooperation.</p>
<p><b>Output 2:</b> Sustainable access to safe and potable water provided in the Middle Governorate of the Gaza Strip, and in Al Zawaida area in particular. <b>Baselines:</b> Only 15% of pumped ground water meets WHO guidelines for chloride concentration in the Middle Governorate. In Al Zawaida area around 80% of water supplied from ground water aquifer is brackish water and non potable. The remaining 20% of drinkable water is</p>	<p><b>Targets year: 2010-2011</b></p>	<ul style="list-style-type: none"> <li>▪ Study the existing distribution system.</li> <li>▪ Drafting sustainable operation scheme and develop distribution plan.</li> <li>▪ Monitor water supply and quality in the municipal water network.</li> <li>▪ Collect water samples and carry out lab tests.</li> <li>▪ Assure making correction measures and necessary modifications on municipal water networks by the service provider to assure supplying quantitative and qualitative water to beneficiaries.</li> <li>▪ Conduct specific training on management and monitoring of distribution system at municipal level.</li> <li>▪ Brackish water well located at the site of the desalination plant will be stopped.</li> <li>▪ Further discussions with PWA and CMWU to close number of high saline water wells in the targeted area.</li> </ul>	<p>GVC, CMWU, PWA, UNDP  GVC team, CMWU staff, Al Zawaida Municipality technical staff, Project Manager and supervision team, Field Equipments, Lab tests, Vehicles, Euro 33,520 through Italian Cooperation.</p>

<p>supplied by Mekorot services.          Poor distribution system through the zoning scheme.          Drinkable water supplied by private sector is de-mineralized and contaminated at its final destination.          Cost of tankered drinking water is estimated to 50 NIS/m<sup>3</sup>.          10MCM/year abstracted from ground water aquifer in the Middle Governorate.          Local ground water aquifer in the Middle Governorate cannot meet water demand.          Ground water aquifer in the Gaza Strip over drafted by almost 200%.  <b>Indicators and targets:</b>          Water availability to households at Al Zawaida area not less than 100 l/c/d.          15 l/c/d of drinkable water supplied through the desalination plant.          Safe and disinfected drinkable water supplied.          Water quality of drinking water supplied through the municipal network meet the WHO guidelines.          Brackish water well located at the inland of the sea water desalination plant stopped.          Number of municipal high saline water wells in targeted area closed.          Ground water abstracted from local aquifer reduced.</p>				
<p><b>Output 3:</b>          Increased awareness of the beneficiaries regarding the efficient use of water, water quality and water resources management.  <b>Baselines:</b>          Low environmental awareness relevant to water quality, water consumption and</p>	<p><b>Targets year: 2010-2011</b></p>	<ul style="list-style-type: none"> <li>▪ Identify community needs.</li> <li>▪ Asset required support in coordination with the service provider.</li> <li>▪ Address local population habits of drinking low mineralized water.</li> <li>▪ Establishment of local water Committee</li> <li>▪ Analyze water testing data and use it in awareness campaign.</li> <li>▪ Conduct site visits to the households.</li> <li>▪ Provide localized community awareness on water quality and</li> </ul>	<p>GVC, CMWU, Al Zawaida Municipality, UNDP</p>	<p>GVC team,          CMWU staff,          Al Zawaida Municipality technical staff,          Project Manager and</p>

<p>water management.</p> <p>No public awareness campaign conducted in the targeted community of Al Zawaida.</p> <p>Lack of participation of beneficiaries in water supply relevant issues.</p> <p>Lack of public awareness documents with water relevant data and lessons learned.</p> <p><b>Indicators and targets:</b></p> <p>Level of environmental awareness in the targeted area.</p> <p>Number of public awareness meetings and public workshop conducted in the targeted community.</p> <p>Involvement and participation of Al Zawaida residents in the project process and the public awareness campaign.</p> <p>Not less than 50% of household in Al Zawaida area informed about distributed water quality.</p> <p>Development and dissemination of awareness documents with water relevant data and lessons learned.</p>	<p>management of consumption.</p> <ul style="list-style-type: none"> <li>▪ Conduct public meetings.</li> <li>▪ Conduct community and public main workshop.</li> <li>▪ Develop and disseminate public awareness relevant documents.</li> </ul>	<p>supervision team, Field Equipments, Lab tests, Vehicles, Euro 27,895 through Italian Cooperation.</p>
--	---	--

V. ANNUAL WORK PLAN

Year: 2010-2011

EXPECTED OUTPUTS <i>List activity results and associated actions</i>	PLANNED ACTIVITIES	TIMEFRAME								RESPONSIBLE PARTY	Funding Source	Budget Description	Amount EURO
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Output 1 Deir Al Balah Sea Water Desalination Plant re-activated and upgraded for more effectiveness and sustainability. <b>Baselines:</b> The sea water desalination plant runs at 25% of its capacity. The existing two sea shore wells are currently out of service. The sea water desalination plant is treating brackish water pumped from ground water well producing 70m <sup>3</sup> /hr. Existing energy saving system running at 30% recovery rate. Treated water production cost is 1.6US\$/M <sup>3</sup> . <b>Indicators and targets:</b> The sea water desalination plant will run at original full design capacity; 600 m <sup>3</sup> /day. Two sea shore water wells will be in full operation each of 70m <sup>3</sup> /hr. Brackish water abstracted from ground water aquifer at the plant site stopped. New energy saving system running at 50% recovery rate installed. Treated water production cost reduced by 30%.	GVC Team Mobilization  Prepare MOU between GVC and CMWU and GEDCO.  Prepare, review and finalize detailed designs and BOQs. Prepare tender documents. Carry out tendering and bidding processes. Review, evaluate bids and award contracts. Start construction works.  Supply and install electrical grid and remote control system. Re-connect the sea shore wells to the plant. Rehabilitate two sea shores well pumping system. Upgrading of the existing high pressure pump saving system. Maintenance of the plant and provision of spare parts.									GVC	Government of Italy		
										GVC, CMWU	Government of Italy		
										GVC, CMWU	Government of Italy		
										GVC, GEDCO	Government of Italy		
										GVC, CMWU	Government of Italy		
										GVC	Government of Italy		
										GVC, CMWU	Government of Italy		
													Euro 183,585

	Monitor construction works and approve payments.							Government of Italy																			
<p><b>Output 2:</b> Sustainable access to safe and potable water provided in the Middle Governorate of the Gaza Strip, and in Al Zawiada area in particular. <b>Baselines:</b> Only 15% of pumped ground water meets WHO guidelines for chloride concentration in the Middle Governorate. In Al Zawiada area around 80% of water supplied from ground water aquifer is brackish water and non potable. The remaining 20% of drinkable water is supplied by Mekorot services. Poor distribution system through the zoning scheme. Drinkable water supplied by private sector is de-mineralized and contaminated at its final destination. Cost of tankered drinking water is estimated to 50 NIS/m3. 10MCM/year abstracted from ground water.</p>	Finalize construction work and hand over to the service provider.							Government of Italy																			Euro 33,520

<p>aquifer in the Middle Governorate. Local ground water aquifer in the Middle Governorate cannot meet water demand. Ground water aquifer in the Gaza Strip over drafted by almost 200%.</p>						
<p><b>Indicators and targets:</b> Water availability to households at Al Zawaida area not less than 100 l/c/d. 15 l/c/d of drinkable water supplied through the desalination plant. Safe and disinfected drinkable water supplied. Water quality of drinking water supplied through the municipal network meet the WHO guidelines. Brackish water well located at the inland of the sea water desalination plant stopped. Number of municipal high saline water wells in targeted area closed. Ground water abstracted from local aquifer reduced.</p>		<p>Brackish water well located at the site of the desalination plant will be stopped. Further discussions with PWA and CMWU to close number of high saline water wells in the targeted area.</p>	<p>GVC, CMWU, PWA</p>	<p>Government of Italy</p>		
<p><b>Output 3:</b> Increased awareness of the beneficiaries regarding the efficient use of water, water quality and water resources management. <b>Baselines:</b> Low environmental awareness relevant to water quality, water consumption and water management. No public awareness campaign conducted in the targeted community of Al Zawaida. Lack of participation of beneficiaries in water supply relevant issues. Lack of public awareness documents with water relevant data and lessons learned. <b>Indicators and targets:</b></p>		<p>Identify community needs. Asset required support in coordination with service provider. Address local population habits of drinking low mineralized water. Establishment of local water Committee. Monitoring of water quantity and quality. Carry out water sampling and testing (after the intervention).</p>	<p>GVC, CMWU</p>	<p>Government of Italy</p>	<p>GVC, CMWU, Al Zawadia Municipality</p>	<p>Euro 27,895</p>





---

## VI. PROJECT MANAGEMENT AND IMPLEMENTATION ARRANGEMENT

### Implementation modalities

UNDP/PAPP delivers through the Direct Execution (DEX) modality. The DEX modality, which takes into account the institutional capacities, the legal setting and evolving situational context, has been effective in addressing the socio-economic needs of the Palestinian people, which is UNDP/PAPP's primary mandate, as stipulated by the General Assembly. UNDP/PAPP works in partnership with national authorities, civil society, the private sector, and the international community and UN sister agencies.

Throughout the implementation processes, UNDP/PAPP plans to profoundly rely on international partners/counterparts and local human and capital resources to achieve the programme's goals. The capacity of potential implementing partners and sub-contractors will be assessed through standard UNDP procedures.

UNDP/PAPP is the Executing Entity of the project. The Executing Entity is the entity responsible and accountable for managing the project, including the monitoring and evaluation of project interventions and achieving project outputs.

Besides, UNDP/PAPP will utilize its full technical and financial capacities through the process to assure quality implementation of proposed interventions. All the proposed interventions are gender-sensitive and take into account women rights and needs in line with UNDP/PAPP gender mainstreaming and women empowerment strategies.

UNDP will report to the Italian Cooperation on quarterly basis as well as upon request by the Italian Cooperation whereas the accountability of the project results and financial management rests with UNDP/PAPP.

### Planning and Management of Activities

The UNDP/PAPP Project Management structure consists of roles and responsibilities that bring together the various interests and skills involved in, and required by, the project.

UNDP/PAPP will assign a Program Analyst from the Environment and Natural Resources Team to monitor and follow-up on all managerial issues, including administrative and financial aspects related to the project. The Programme Analyst will ensure the quality of the project throughout the implementation process.

UNDP will assign a Project Manager who will be responsible for the overall management and decision-making for the project. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document to the required standard of quality and within the specified constraints of time and cost. In order to ensure effective implementation and continuous activities progress monitoring, the Project Manager will be assisted by a Project Assistant and a Site Engineer.

UNDP will enter into cooperation agreement with GVC as the implementing partner of the project. GVC will implement the project in close cooperation with the main beneficiaries/ counterparts; PWA, CMWU, Al Zawaida Municipality and GEDCO. GVC will be responsible for the implementation of the project, operational tasking, initiating, running, managing, supervising, and monitoring the different work activities to ensure completing, finalizing and handing over the work activities and the project in timely and quality manners. GVC, having gone through the NGO assessment exercise of UNDP will apply its own financial and procurement guidelines. However, it is also encourage to consult with the UNDP procurement's roles and procedures throughout the project's implementation and procurement processes, and will undertake the Project in accordance with UNDP policies and procedures as set out in the UNDP Programme and Operations Policies and Procedures (POPP).

GVC responsibilities will include carrying out, performing and accomplishing, but not limited to, the following services and tasks:

- Mobilize the GVC working team.
- Manage and supervise the GVC team on a daily basis.
- Prepare MOUs between GVC and PWA, CMWU and GEDCO.
- Liaise, facilitate and carry out coordination requirements with all counterparts and relevant partners.
- Provide all required technical consultation and advises.
- Prioritize work activities and relevant actions and develop working plans.

- Prepare, review and finalize projects detailed designs and BOQs.
- Prepare the tender documents.
- Carry out tendering and bidding processes.
- Review and evaluate bids and award contracts
- Start and run the construction works and activities.
- Carry out required arrangements and coordination for materials entry.
- Monitor construction works and approve payments to contractors against work accomplished.
- Finalize construction works and hand over the project to service provider.
- Assure qualitative and safe drinkable water is supplied to end users through the municipal water network.
- Monitor the water quantities and water quality supplied to the end users and carry out the required lab tests.
- Develop operation and monitoring plans in close cooperation with the service provider.
- Carry out specific training for operators of the service provider's technical staff and municipal technical staff.
- Assure establishment of local water committee.
- Prepare and perform a comprehensive public awareness campaign.
- Prepare monitoring, evaluation and financial reports and closing the project as per the client requirements.

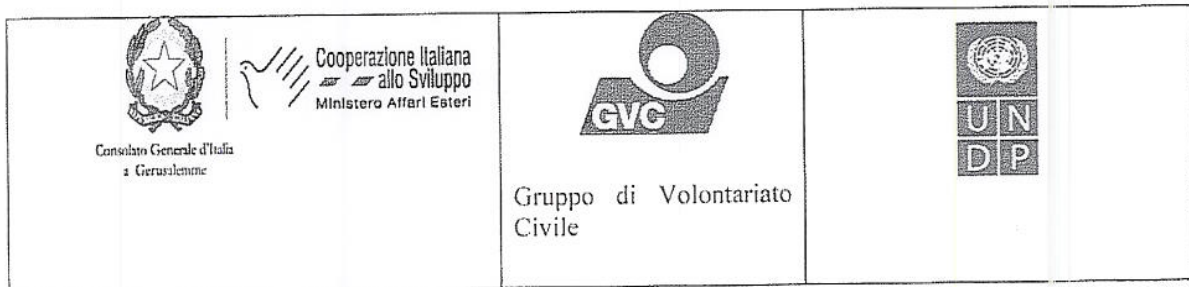
### Project Communication Strategy

Effective communication with all stakeholders (UNDP, Donor, Beneficiaries) is fundamental to the project's success. Information and communication needs of the stakeholders relative to the progress of the project will be determined and highlighted as a communications plan/matrix. The Project Managers, with the help of the communications unit, will be able to develop and complete the plan.

The plan will identify the means/medium and frequency of communication between the different stakeholders.

### Project Visibility Plan

Throughout the project life's cycle and the public awareness campaign, UNDP and GVC will ensure highlighting the role of the Italian Cooperation in line with the Donor and UNDP communication guidelines, making sure that the Italian Cooperation Logo appears in the relevant newspapers advertisements, project signs, training sessions, main workshop, public awareness documents and publications, etc... The main format for the logos representations is as follows:



### Security Arrangements

UNDP and in coordination with UNDSS will provide security update on daily basis for all staff, and will carry out the required coordination with all counterparts for the materials entry.

The responsibility for the safety and security of the GVC and its personnel and property, and of UNDP's property in the GVC's custody, rests with the GVC. The GVC shall put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the Gaza Strip; assume all risks and liabilities related to the GVC's security, and the full implementation of the security plan. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary.

As a result, the security cost to the project is zero as all security costs, arrangements and risks are borne by the implementing partner.

## Project Contingency Plan

Reference to the detailed Risk Management Matrix of Annex C, and in case of inability to enter the required equipment to the Gaza Strip due to political constraints, especially the stainless steel pumps, the energy saving system and relevant spare parts; UNDP, GVC, PWA and CMWU agreed upon a contingency plan to be undertaken under a worst case scenario aiming to support the targeted beneficiaries. The agreed upon contingency plan is found under Annex E.

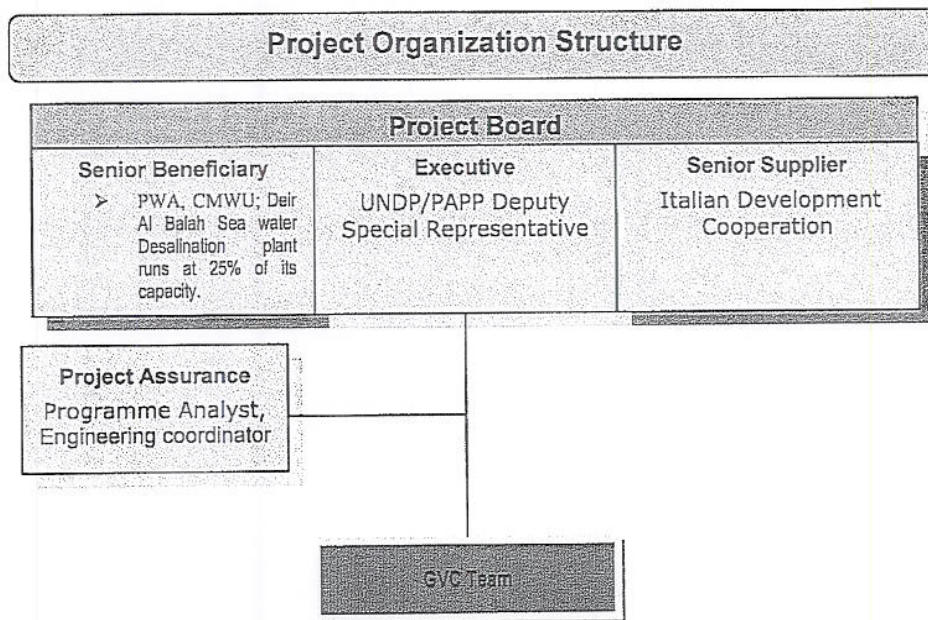
## Project oversight and assurance

The Project Board is the group responsible for making management decisions on a consensus basis for the project when guidance is required by the Project Manager, including recommendations for approval of project revisions. Project reviews by this group are made at designated decision points during the running of the project, or as necessary when raised by the Project Manager. This group is consulted by the Project Manager for decisions when project tolerances (i.e. constraints normally in terms of time and budget) have been exceeded. The Project Board will convene quarterly, in the Gaza Strip as the situation permits. The Project Board consists of the following:

- Executive representing the project ownership to chair the group (Deputy Special Representative, Programme),
- Senior Supplier: The donor: the Italian Development Cooperation;
- Senior Beneficiary to ensure the realization of project benefits from the perspective of project beneficiaries.

The project board makes decisions on a consensus basis. Final decision making on project activities and accountability however rests with UNDP in accordance with its applicable regulations, rules, policies and procedures.

Project Assurance for this project will be the delegated responsibility of the Programme Manager of the Environment and Natural resources Team. The Project Assurance role supports the Project Board by carrying out regular objective and independent project oversight and monitoring functions. It ensures that appropriate project management milestones are managed and completed. The following chart explains the project organization structure:



## VII. MONITORING FRAMEWORK AND EVALUATION

### General Provisions

The Project Manager will prepare a Communication and Monitoring plan (C&M plan) in support of programme objectives with details on external and internal monitoring and communication activities. The Project Manager will need to ensure adequate monitoring of all project activities and should draw on counterparts' resources for activity monitoring in a bid to strengthen capacities in this regard. This falls under the responsibility of the GVC.

The contribution of achieved project outputs to the intended outcome will be monitored by the Environment and Natural Resources Team in close connection with the Gaza Office programming team. Provisions for project evaluation in support of lessons learned in the implementation should be taken in consideration. The Project Board should make recommendations for the application of such an evaluation, building on dialogue with local stakeholders.

### Regular Monitoring Activities

On a quarterly basis, a quality assessment shall record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table below. An Issue Log shall be activated in Atlas and updated by the Project Manager to facilitate tracking and resolution of potential problems or requests for change.

A risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.

Based on the above information recorded in Atlas, a Quarterly Progress Report (QPR) shall be submitted by the Project Manager to the Project Board through Project Assurance, using the standard report format available in the Executive Snapshot.

A project Lesson-learned log shall be activated and regularly updated to ensure on-going learning and adaptation within the organization and to facilitate the preparation of the Lessons-learned Report at the end of the project. A Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events.

A semi-annual Progress Report shall be prepared by the Project Manager and shared with the Project Board. As minimum requirement, the Semi-annual Progress Report shall consist of the Atlas standard format for the QPR covering the reporting period (six months) with updated information for each above element of the QPR as well as a summary of results achieved against pre-defined targets at the output level.

Based on the above report, a semi-annual project review shall be conducted during the second quarter of the year or soon after, to assess the performance of the project and appraise the Work Plan for the next six months. In the second six months, this review will be a final assessment. This review is driven by the Project Board and may involve other stakeholders, as required. It shall focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes.

#### Joint Monitoring

The monitoring and evaluation will be carried out by the Emergency Programme (EP) in the Gaza Field Office. Beside, particular monitoring missions will be implemented together with the Italian Cooperation emergency staff.

#### Quality Management for Project Activity Results

OUTPUT 1: Deir Al Balah Sea Water Desalination Plant re-activated and upgraded for more effectiveness and sustainability.		
Activity Result 1 (Atlas Activity ID)	<i>Deir Al Balah sea water desalination plant reactivated.</i>	Start Date: April 2010 End Date: Jan 2011
Purpose	<i>To rehabilitate and re-activate Deir Al Balah desalination plant to run at its original full design capacity; 600 m3/day.</i>	
Description	<i>The pumping systems of two sea shore water wells will be rehabilitated by reconnecting the electrical cables and installing two new stainless steel submersible pumps, and the existing high pressure energy saving system will be replaced and upgraded for energy cost effectiveness.</i>	
Quality Criteria <i>How/with what indicators the quality of the activity result will be measured?</i>	Quality Method <i>Means of verification. What method will be used to determine if quality criteria has been met?</i>	Date of Assessment <i>When will the assessment of quality be performed?</i>
Two sea shore water well connected and operated each at 70m3/hr, and the sea water desalination plant run at original full design capacity; 600 m3/day.	MOUs Tender and contract documents Field visits Formulated operation and monitoring plan and reports. Progress reports Hand-over documents	quarterly
New energy saving system installed and run at 50% recovery rate.	Tender and contract documents Field visits Formulated operation and monitoring plan and reports. Progress reports Hand-over documents	quarterly
Treated water production cost reduced by 30%	Formulated operational and monitoring plan and reports. Cost analysis of water supply system Progress Reports.	quarterly

<b>OUTPUT 2:</b> Sustainable access to safe and potable water provided in the Middle Governorate of the Gaza Strip and in Al Zawaida area in particular.		
<b>Activity Result 1 (Atlas Activity ID)</b>	<i>Access to qualitative water for Al Zawaida area provided and local ground water aquifer preserved.</i>	Start Date: April 2010 End Date: Jan 2011
<b>Purpose</b>	To provide sustainable access to safe and qualitative drinkable water to 17,786 residents living in Al-Zawaida area; located in the Middle Governorate of the Gaza Strip. The local ground water aquifer preserved by closing saline wells.	
<b>Description</b>	<i>The existing distribution system will be studied and sustainable operation scheme and distribution plan developed The water supply will be monitored in the network and water samples will be collected and tested in lab. Necessary modification and correction measures will be taken by the service provider and Al Zawaida Municipality and their staff will be trained. Brackish water well in the plant site will be stopped and municipal saline water well will be closed.</i>	
<b>Quality Criteria</b> <i>How/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. What method will be used to determine if quality criteria has been met?</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>
Water availability to households at Al Zawaida area not less than 100 l/c/d. 15 l/c/d of drinkable water supplied through the desalination plant.	Formulated operational and monitoring plans and reports Field visits Progress reports	quarterly
Safe and disinfected drinkable water with quality as per WHO guidelines supplied.	Formulated monitoring plan and reports. Field visits. Water quality lab tests. Progress Reports	quarterly
Brackish water well located at the site of the sea water desalination plant stopped. Number of municipal high saline water wells in the targeted area closed. Ground water abstracted from local aquifer reduced.	Formulated operational plan and reports. Field visits Progress Reports	quarterly

<b>OUTPUT 3:</b> Increased awareness of the beneficiaries regarding the efficient use of water, water quality and water resources management.		
<b>Activity Result 1 (Atlas Activity ID)</b>	<i>A public awareness campaign launched</i>	Start Date: April 2010 End Date: Jan 2011
<b>Purpose</b>	A public awareness campaign will be conducted targeting the service provider, municipal staff and residents to address water quality related issues, to enhance water resources management and to control water consumption to enable achieving effective cost recovery and project's sustainability.	
<b>Description</b>	The community need will be identified and required support will be assisted with the service provider. The local population habits of drinking low mineralized water will be addressed. Local water Committee will be established. Water quantity and quality in the network will be monitored and water samples will be collected and tested in lab. Site visits to households will be conducted and localized community awareness on water quality and management of consumption will be provided. Public awareness relevant documents will be develop and disseminate. Public meetings and main workshop will be conducted targeting different levels of local community.	
<b>Quality Criteria</b> <i>How/with what indicators the quality of the activity result will be measured?</i>	<b>Quality Method</b> <i>Means of verification. What method will be used to determine if quality criteria has</i>	<b>Date of Assessment</b> <i>When will the assessment of quality be performed?</i>

	<i>been met?</i>		
Local committee established.	TOR MOMs	quarterly	
Number of public awareness meetings and workshop conducted in targeted community.	Meetings Workshop List of attendees Progress Reports	quarterly	
Number of Al Zawaida residents participate and involved in the project process and the public awareness campaign. Not less than 50% of household in Al Zawaida area informed about distributed water quality.	Field visits Meetings Workshops Progress Reports	quarterly	
Development and dissemination of awareness documents with water relevant data and lessons learned.	Documents Developed Progress Reports	quarterly	



2.1.1.1	Project Manager	1	man	9	months	3900	€ 35,100
2.1.1.2	Travels expenses for project manager	1	flight	1	travel	500	€ 500
2.1.2	Local staff						
2.1.2.1	Office administrator (shared cost)	1	man	9	month	300	€ 2,700
	<b>Sub Total 2.1</b>						<b>€ 38.300</b>
2.2	<b>GVC Local logistic Costs</b>						
2.2.1	Local contracted transport						
2.2.2	Car rental 2x4 (green plate)	1	unit	9	months	€ 700	€ 6,300
2.2.3	Running cost of rented cars and transportation	1	unit	9	months	€ 120	€ 1,080
2.2.4	Phone cards	4	unit	9	months	€ 30	€ 1,080
2.2.5	Office rental and running costs (shared cost)	1	unit	9	months	€ 200	€ 1,800
	<b>Sub Total 2.2</b>						<b>€ 10,260</b>
	<b>Total item 2</b>						<b>€ 48,560</b>
	<b>Construction, Management and Operation Costs ( Total item 1 + Total item 2 )</b>						<b>€ 235.000</b>
	<b>Item3: GVC Indirect Costs 4.25%</b>						<b>€ 10.000</b>
	<b>GVC Total Eligible Cost : (Construction, Management and Operation Costs)</b>						<b>€ 245.000</b>
	<b>UNDP Management and Operation Cost</b>						<b>€ 8,000</b>
	<b>Sub-Total</b>						<b>€ 253,000</b>
	<b>UNDP GMS 7%</b>						<b>€ 17,7100</b>
	<b>Grand Total</b>						<b>€ 270,710</b>

## VIII. ANNEXES

## Annex A

## Detailed Project Cost Estimate

Project Component/Activity Cost	Quantity	Unit	Duration	Unit	Unit price (EUR)	Total Cost (EUR)
<b>Item 1: Construction Works and Relevant Activities, Consultancy and On-site Supervision (Goods and Services Delivered to Beneficiaries)</b>						
<b>1.1 Water and Sanitation Works and Activities</b>						
1.1.1 Supply and install electrical grid, 250 KVA transformer and related systems to re-connect the two sea shore wells to the plant (Shared cost GVC/GEDCO)						€ 16,000
1.1.2 Sea water pumping system, including protection structure and spare parts						€ 30,000
1.2.3 Supply and install HP pumps energy saving system, saving ratio 50:60%, including spare parts.						€ 96,540
1.2.4 Upgrading PLC, O&M of the plant and water distribution system						€ 8,000
1.2.5 Water sampling and testing						€ 3,000
1.2.6 Training and awareness campaign materials						€ 2,300
<b>Sub-Total 1.1</b>						<b>€ 155,840</b>
<b>1.2 Consultancy and On-site Supervision Costs (GVC Technical Personnel)</b>						
1.2.1 Expatriate staff						
1.2.1.1 Technical Coordinator	1	man	2	month	4000	€ 8,000
1.2.1.2 Flight -Technical coordinator -	1	flight	2	travel	500	€ 1,000
1.2.2 Local staff						
1.2.2.1 Consultant/Technician (for desalination system) part time	1	man	9	month	650	€ 5,850
1.2.2.2 Engineer	1	man	9	month	1200	€ 10,800
1.2.2.3 Field worker/data collector	1	man	9	month	550	€ 4,950
<b>Sub-Total 1.2</b>						<b>€ 30,600</b>
<b>Total item 1</b>						<b>€ 186,440</b>
<b>Item 2: Construction Management and Operation Costs (GVC Management, Support Staff and Logistic Costs)</b>						
<b>2.1 Personnel</b>						
2.1.1 Expatriate staff						

**Annex B**  
**Cost Breakdown as Per Output**

**OUTPUT 1**

**Deir Al Balah Sea Water Desalination Plant Re-activated and Upgraded for more Effectiveness and Sustainability**

Heading	Total Cost (EUR)	Cost allocated to Output 1 (EUR)
<b>Item 1: Construction Works and Relevant Activities, Consultancy and On-site Supervision (Goods and Services delivered to Beneficiaries)</b>	<b>€ 186,440</b>	<b>€ 164,065</b>
<b>1.1 Water and sanitation Works and Activities</b>	<b>€ 155,840</b>	<b>€ 148,540</b>
1.1.1 Supply and install electrical grid, 250 KVA transformer and related systems to re-connect the two sea shore wells to the plant (shared cost GVC/GEDCO)	€ 16,000	€ 16,000
1.1.2 Sea water pumping system, including protection structure and spare parts	€ 30,000	€ 30,000
1.1.3 Supply and install HP pumps energy saving system, saving ratio 50:60%	€ 96,540	€ 96,540
1.1.4 Upgrading PLC, O&M of the plant and water distribution system	€ 8,000	€ 6,000
1.1.5 Water sampling and testing	€ 3,000	€ 0
1.1.6 Training and awareness campaign materials	€ 2,300	€ 0
<b>1.2 Consultancy and On-site Supervision Costs (GVC Technical Personnel)</b>	<b>€ 30,600</b>	<b>€ 15,525</b>
1.2.1 Expatriate staff		
1.2.1.1 Technical Coordinator	€ 8,000	€ 8,000
1.2.1.2 Flight-Technical coordinator -	€ 1,000	€ 1,000
1.2.2 Local staff		
1.2.2.1 Consultant/Technician (desalination system)	€ 5,850	€ 2,925
1.2.2.2 Engineer	€ 10,800	€ 3,600
1.2.2.3 Field worker/data collector	€ 4,950	€ 0
<b>Item 2: Construction Management and Operation Costs (GVC Management, Support Staff and Logistic Costs)</b>	<b>€ 48,560</b>	<b>€ 16,187</b>
<b>2.1 Personnel</b>	<b>€ 38,300</b>	<b>€ 12,767</b>
2.1.1 Expatriate staff		
2.1.1.1 Project Manager	€ 35,100	€ 11,700
2.1.1.2 Travels expenses for project manager	€ 500	€ 167
2.1.2 Local staff		
2.1.2.1 Office administrator (shared cost)	€ 2,700	€ 900
<b>2.2 GVC Local Logistic Costs</b>	<b>€ 10,260</b>	<b>€ 3,420</b>
2.2.1 Car rental 2x4 (green plate)	€ 6,300	€ 2,100

2.2.2 Running cost rented car and transportation	€ 1,080	€ 360
2.2.3 Communication costs (phone cards)	€ 1,080	€ 360
2.2.4 Gaza office rental and running costs (shared cost)	€ 1,800	€ 600
<b>TITLE : GVC Indirect Costs</b>	<b>€ 10,000</b>	<b>€ 3,333</b>
<b>TOTAL OUTPUT 1</b>		<b>€ 183,585</b>

## OUTPUT 2

Sustainable access to safe and qualitative drinkable water in the Middle Governorate of the Gaza Strip, Al Zawaida area in particular, is provided and ground water aquifer preserved

Heading	Total Cost (EUR)	Cost allocated to Output 2 (EUR)
<b>Item 1: Construction Works and Relevant Activities, Consultancy and On-site Supervision (Goods and Services delivered to Beneficiaries)</b>	<b>€ 186,440</b>	<b>€ 14,000</b>
<b>1.1 Water and sanitation Works and Activities</b>	<b>€ 155,840</b>	<b>€ 5,000</b>
1.1.1 Supply and install electrical grid, 250 KVA transformer and related systems to re-connect the two sea shore wells to the plant (shared cost GVC/GEDCO)	€ 16,000	€ 0
1.1.2 Sea water pumping system, including protection structure and spare parts	€ 30,000	€ 0
1.2.3 Supply and install HP pumps energy saving system, saving ratio 50:60%	€ 96,540	€ 0
1.2.4 Upgrading PLC, O&M of the plant and water distribution system	€ 8,000	€ 2,000
1.2.5 Water sampling and testing	€ 3,000	€ 3,000
1.2.6 Training and awareness campaign materials	€ 2,300	€ 0
<b>1.2 Consultancy and On-site Supervision Costs (GVC Technical Personnel)</b>	<b>€ 30,600</b>	<b>€ 9,000</b>
1.2.1 Expatriate staff		
1.2.1.1 Technical Coordinator	€ 8,000	€ 0
1.2.1.2 Flight - Technical coordinator -	€ 1,000	€ 0
1.2.2 Local staff		
1.2.2.1 Consultant/Technician (desalination system)	€ 5,850	€ 2,925
1.2.2.2 Engineer	€ 10,800	€ 3,600
1.2.2.3 Field worker/data collector	€ 4,950	€ 2,475
<b>Item 2: Construction Management and Operation Costs (GVC Management, Support Staff and Logistic Costs)</b>	<b>€ 48,560</b>	<b>€ 16,187</b>
<b>2.1 Personnel</b>	<b>€ 38,300</b>	<b>€ 12,767</b>
2.1.1 Expatriate staff		
2.1.1.1 Project Manager	€ 35,100	€ 11,700

2.1.1.2 Travels expenses for project manager	€ 500	€ 167
2.1.2. Local staff		
2.1.2.1 Office administrator (shared cost)	€ 2,700	€ 900
<b>2. 2 GVC Local logistic Costs</b>	<b>€ 10,260</b>	<b>€ 3,420</b>
2.2.1 Car rental 2x4 (green plate)	€ 6,300	€ 2,100
2.2.2 Running cost rented car and transportation	€ 1,080	€ 360
2.2.3 Communication costs (phone cards)	€ 1,080	€ 360
2.2.4 Gaza office rental and running costs (shared cost)	€ 1,800	€ 600
<b>TITLE : GVC Indirect costs</b>	<b>€ 10,000</b>	<b>€ 3,333</b>
<b>TOTAL OUTPUT 2</b>		<b>€ 33,520</b>

### OUTPUT 3

A public awareness campaign relevant to water quality and water resources management is raised

Heading	Total Cost (EUR)	Cost allocated to Output 3 (EUR)
<b>Item 1: Construction Works and Relevant Activities, Consultancy and On-site Supervision (Goods and Services delivered to Beneficiaries)</b>	<b>€ 186,440</b>	<b>€ 8,375</b>
<b>1.1 Water and sanitation Works and Activities</b>	<b>€ 155,840</b>	<b>€ 2,300</b>
1.1.1 Supply and install electrical grid, 250 KVA transformer and related systems to re-connect the two sea shore wells to the plant (shared cost GVC/GECCO)	€ 16,000	€ 0
1.1.2 Sea water pumping system, including protection structure and spare parts	€ 30,000	€ 0
1.2.3 Supply and install HP pumps energy saving system, saving ratio 50:60%	€ 96,540	€ 0
1.2.4 Upgrading PLC, O&M of the plant and water distribution system	€ 8,000	€ 0
1.2.5 Water sampling and testing	€ 3,000	€ 0
1.2.6 Training and awareness campaign materials	€ 2,300	€ 2,300
<b>1.2 Consultancy and On-site Supervision Costs (GVC Technical Personnel)</b>	<b>€ 30,600</b>	<b>€ 6,075</b>
1.2.1 Expatriate staff		
1.2.1.1 Technical Coordinator	€ 8,000	€ 0
1.2.1.2 Flight - Technical coordinator -	€ 1,000	€ 0
1.2.2 Local staff		
1.2.2.1 Consultant/Technician (desalination system)	€ 5,850	€ 0
1.2.2.2 Engineer	€ 10,800	€ 3,600
1.2.2.3 Field worker/data collector	€ 4,950	€ 2,475

Item 2: Construction Management and Operation Costs (GVC Management, Support Staff and Logistic Costs)	€ 48,560	€ 16,187
<b>2.1 Personnel</b>	<b>€ 38,300</b>	<b>€ 12,767</b>
2.1.1 <i>Expatriate staff</i>		
2.1.1.1 Project Manager	€ 35,100	€ 11,700
2.1.1.2 Travels expenses for project manager	€ 500	€ 167
2.1.2 <i>Local staff</i>		
2.1.2.1 Office administrator (shared cost)	€ 2,700	€ 900
<b>2. 2 GVC Local logistic Costs</b>	<b>€ 10,260</b>	<b>€ 3,420</b>
2.2.1 Car rental 2x4 (green plate)	€ 6,300	€ 2,100
2.2.2 Running cost rented car and transportation	€ 1,080	€ 360
2.2.3 Communication costs (phone cards)	€ 1,080	€ 360
2.2.4 Gaza office rental and running costs (shared cost)	€ 1,800	€ 600
<b>TITLE : GVC Indirect costs</b>	<b>€ 10,000</b>	<b>€ 3,333</b>
<b>TOTAL OUTPUT 3</b>		<b>€ 27,895</b>

**TOTAL OUTPUTS 1+2+3**

Heading	Total Cost (EUR)	Cost allocated to Outputs 1+2+3 (EUR)
Item 1: Construction Works and Relevant Activities, Consultancy and On-site Supervision (Goods and Services delivered to Beneficiaries)	€ 186,440	€ 186,440
1.1 <i>Water and sanitation Works and Activities</i>	€ 155,840	€ 155,840
1.2 <i>Consultancy and On-site Supervision Costs (GVC Technical Personnel)</i>	€ 30,600	€ 30,600
Item 2: Construction Management and Operation Costs (GVC Management, Support Staff and Logistic Costs)	€ 48,560	€ 48,560
<b>2.1 Personnel</b>	<b>€ 38,300</b>	<b>€ 38,300</b>
<b>2. 2 GVC Local logistic Costs</b>	<b>€ 10,260</b>	<b>€ 10,260</b>
GVC Construction, Management and Operation Costs (Title 1 and 2)	€ 235,000	€ 235,000
TITLE : GVC Indirect Costs	€ 10,000	€ 10,000
<b>GVC Total Eligible Costs</b>	<b>€ 245,000</b>	<b>€ 245,000</b>

**Annex C**  
**Detailed Risk Management Matrix**

#	Description	Date Identified	Type	Impact	Threat Likelihood	Threat Impact	Risk Level	Countermeasures / Mngt response
1	Israeli Military Operation on Gaza.	Jan. 2010	Political	Project could be delayed or cancelled.	Unlikely	Moderate	Low	Coordination with the Israeli concerned authorities.
2	Difficulties in access and entry of required equipment and construction materials.	Jan.2010	Strategic Operational	Essential components of project will not be implemented.	likely	Severe	High	Coordination with the Israeli concerned authorities and counterparts.
3	Shortage of available fund to cover main construction works.	Jan. 2010	Strategic Financial	Reduction of scope of work and progress delay. Project's main outputs not achieved.	Moderately likely	Moderate	Medium	Coordination with donors and counterparts.
4	Restriction on mobility of designated international and local staff due to security situation.	Jan. 2010	Operational	Project progress could be delayed	Moderately Likely	Moderate	Medium	Coordination with UNDSS for security clearance of day-to-day travel. Provide security update on daily basis for all staff.
5	Fuel shortage and regular electricity cut.	Jan 2010	Operational	Restrict work activities. Project progress could be delayed	Likely	Minor	Medium	Alternative fuel and electrical source to be provided by contractor and counterparts.
6	GEDCO not going to install electrical transformer and make necessary electrical connections as per the signed MOU with GVC and CMWU.	Jan.2010	Regulatory Financial Strategic	The sea water wells will not operated. Project could be delayed.	Unlikely	Severe	Medium	UNDP/PAPP will invite counterparts to joint cooperation meetings to agree upon a work plan and timeframe.

**Annex D**

**Work Plan in Timeline Monthly Basis**

Planned Activities	Months								
	I	II	III	IV	V	VI	VII	VIII	IX
<b>Activities for Output 1</b>									
Team Mobilization	■								
Preparation of MOU between GVC, PWA, CMWU and GEDCO	■								
Preparation of detailed designs and BOQs Preparation of tender document and tendering process	■	■							
Evaluation of bids and contract award		■	■						
Supply and install the electrical grid to re-connect the two sea shore wells to the plant			■	■	■				
Rehabilitation of the two sea shore well pumping system				■	■	■			
Upgrading the existing high pressure pump energy saving system (installation of the system)						■	■		
Upgrading PLC, O&M of the plant and water distribution system						■	■		
Monitoring of construction works				■	■	■	■		
Completion of construction works and hand over to the service providers								■	
<b>Activities for Output 2</b>									
Study of the existing water distribution system and	■	■	■						
Drafting of a sustainable operational scheme			■	■	■				
Monitor water supply in water network	■	■	■	■	■	■	■	■	■
Collection of water samples and tests (before the intervention)		■	■	■					
Make correction measures and necessary modifications of the water networks by service provider						■	■	■	■
Training on management and distribution system at municipal level and monitoring of the sustainable operational scheme						■	■	■	■
Brackish water well located at the site of the desalination plant will be stopped. Further discussions with PWA and CMWU to close number of high saline water wells in the targeted area.						■	■	■	■
Finalize handing over to the service provider and end users								■	■
<b>Activities for Output 3</b>									
Identify community needs, asset required support and coordination with service providers	■	■							
Establishment of Local Water Committee	■	■	■						
Monitoring of water quality monitoring and water distribution system (after the intervention)						■	■	■	■
Conduct site visits to the households. Provide localized community awareness on water quality and management of consumption	■	■	■	■	■	■	■	■	■
Develop and disseminate public awareness relevant documents. Conduct public meetings						■	■	■	■
Conduct Main Workshop								■	■



Annex E

Re-activation and Upgrading of Deir Al Balah Sea Water Desalination Plant

Annex E

Contingency Plan

As a result of their past experience, and after the Cast Lead Operation on Gaza December 2008 - January 2009, GVC and in coordination with the PWA and the CMWU, has carried out the required liaison with the Israeli concerned authorities, and has succeeded in accessing into Gaza, the complete brackish water desalination plant for Al Bureij area in the Gaza Strip.

Reference to the detailed Risk Management Matrix of Annex C, and in case of long delays or inability to enter the required equipment into the Gaza Strip due to political constrains, especially the stainless steel pumps, the energy saving system and relevant spare parts, then the PWA, CMWU and GVC agree upon a contingency plan as an alternative to implementing the project of the re- activation and upgrading of the Deir Al Balah Sea Water Desalination Plant based on the following scenario:

Reference to the detailed Risk Management Matrix of Annex C of the Project Document, and in case of inability to enter the required equipment into the Gaza Strip, UNDP, GVC, PWA and CMWU agreed, using the worst case scenario aiming to support the targeted beneficiaries in Deir Al Balah area, where the contingency plan will include the following activities:

- UNDP , GVC, PWA and CMWU will discuss and identify alternative works and activities related to the Sea Water Desalination plant, its complementary water sources and distribution systems such as :
- Rehabilitating and upgrading of some existing water wells that characterized by acceptable water quality in Deir Al Balah area.
- Rehabilitating and upgrading the water distribution networks related to those water wells in Deir Al Balah area.
- Develop a comprehensive water quality monitoring campaign in the whole Middle Area Governorate, as a continuation to campaign that accomplished by the GVC in Al Nusseimat and Al Bureij areas, Oct. 2008 – Oct. 2009.
- Increasing and extending the public awareness campaign; targeting the whole Middle Area Governorate.
- Considering supply or manufacturing some items, where applicable, from the local market.

For the PWA (Palestinian Water Authority)

Rebhi El Sheikh, Deputy Chairman



For the CMWU (Coastal Municipalities Water Utility)

Monther Shoblak, Director General



For the GVC

Daniela Riva, Project Manager



For the UNDP

Ashraf Abu Shamala, Project Manager